Synthetix Microlanguage-Based Specializa Specialized System

Meta-Spec Program Program Composition interfaces **Specializer** & Invocation Microengine **Execution** Scheduler File System Guards Kernel Specialized Modules Replugger

Impact

- •Concrete domain-specific languages
 - **Examples: PLAN-P, file** prefetch, packet dropper, microfeedback
- Safety, predictability, performance

Tochnology, transition

Termination, low variance

Twice as fast as compiled Java PEGNY GRADUATE Calton

New Ideas

- Domain-specific meta-
 - Deep semantics, simple **syntax**
- Good microprogram properties
 - Safety (e.g., termination) & security
- Specialized Schedule rpreters

ialization design microlanguages & adapt specialization tools 3en

Implement and refine microlanguages:

- PLAN-P active networking, video driver
- •file prefetch, packet dron OoS Microlanguage Composition: specification
 - refine specialization tools
 - multi-layer QoS mapping
 - interoperation meta-interfa

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